

REMARKS

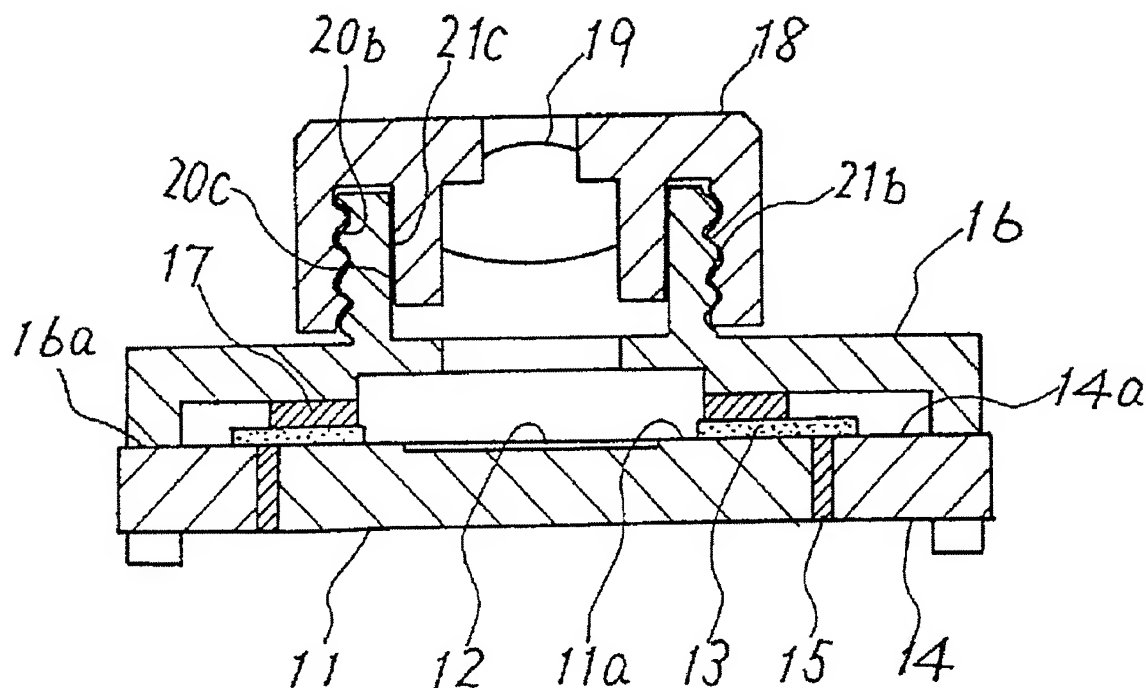
Claims 1, 5-7, 14-16, 18-20, 22, 24, 26-27, 29, 31, 39 and 43 are pending in the application. Claims 1, 14, 18, 20, 22, 26, 27, 29 and 39 are amended. Claims 2, 4, 23 and 30 are canceled. Applicants reserve the right to pursue the original claims and other claims in this and other applications.

Claims 1-2, 4, 5 and 7 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent Application No. 2002/0140836 (“Miyake”). This rejection is respectfully traversed and reconsideration is respectfully requested.

Claim 1 recites a microelectronic imager comprising “an imaging unit including a microelectronic die with an image sensor and a first referencing element fixed to the imaging unit, wherein the first referencing element comprises a first alignment component for horizontal alignment and a first stop component for vertical alignment, the first alignment and first stop components being at a first reference location relative to the image sensor on the die; and an optics unit having an optic member and a second referencing element fixed to the optics unit, wherein the second referencing element comprises a second alignment component for horizontal alignment and a second stop component for vertical alignment, the second alignment and second stop components being at a second reference location relative to the optic member and the second referencing element being seated and in direct contact with the first referencing element at a fixed, preset position in which the optic member is situated at a desired location relative to the image sensor, wherein the entirety of the optics unit is within a vertical periphery of the first alignment component.”

Applicants respectfully submit that Miyake fails to disclose, teach or suggest each and every limitation of claim 1. In particular, Miyake fails to disclose, teach or suggest a “first referencing element compris[ing] a first alignment component for horizontal alignment ... wherein the entirety of the optics unit is within a vertical periphery of the first alignment component” as recited by claim 1. To the contrary of claim 1, Miyake teaches a supporting member 42 with a “cylindrical

protrusion 20 ... [that fits] into a cylindrical recess 21 of the lens holder 18.” (Miyake, ¶ [0042]; FIG. 6, reproduced below).



Miyake FIG. 6

As shown in Miyake FIG. 6, the optics member 18 extends beyond the “vertical periphery of the first alignment component” 20 as recited by claim 1. Thus, as Miyake fails to disclose, teach or suggest each and every limitation of claim 1, claim 1 is not anticipated by Miyake. Claims 5 and 7 depend from claim 1 and are allowable over Miyake for at least the reasons discussed above and on their own merits. Applicants respectfully request the rejection be withdrawn and the claims allowed.

Claims 6, 14-16, 18-20, 22-24, 26-27, 29-31, 39 and 43 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Miyake in view of U.S. Patent Application No. 2003/0223008 (“Kim”). This rejection is respectfully traversed and reconsideration is respectfully requested.

Claim 6 depends from claim 1 and is allowable over Miyake for at least the reasons discussed above with respect to claim 1. Kim fails to remedy the deficiencies of Miyake. That is, Kim also fails to disclose, teach or suggest a “first referencing element compris[ing] a first alignment component for horizontal alignment ... wherein the entirety of the optics unit is within a vertical periphery of the first alignment component” as recited by claim 1. Accordingly, claim 6 is not anticipated by the cited combination.

Claim 14 recites a microelectronic imager comprising “a microelectronic die having an image sensor and a plurality of contacts electrically coupled to the image sensor; a first referencing element fixed relative to the die, the first referencing element having a first alignment component at a lateral distance from the image sensor[;] ... an optics unit having an optic member; and a second referencing element connected to the optics unit, the second referencing element having a second alignment component[,] ... wherein the first alignment component is located entirely within an innermost vertical periphery of the second alignment component .”

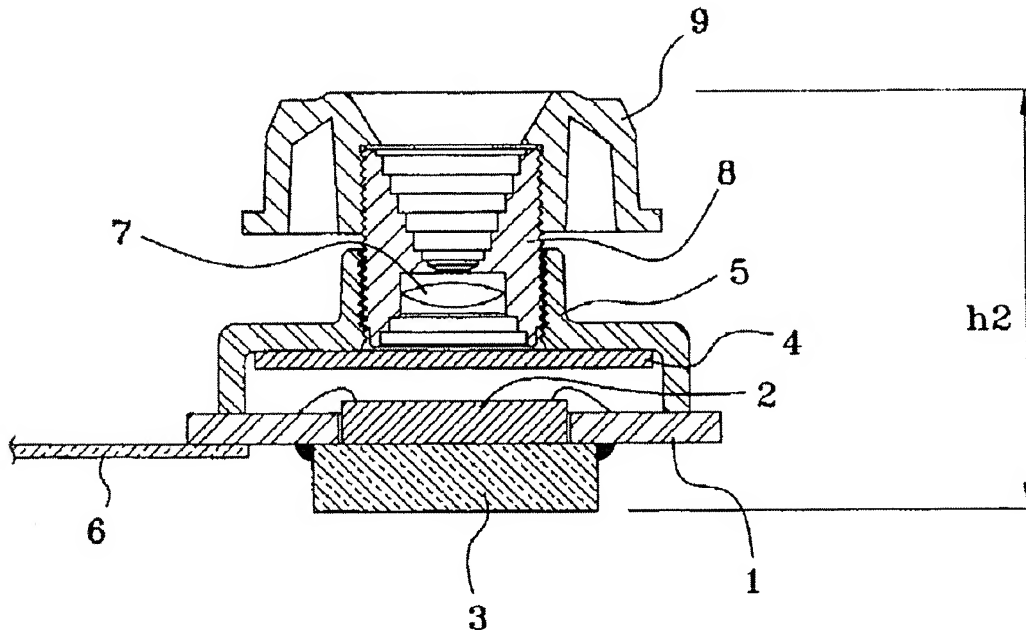
Applicants respectfully submit that the cited combination fails to disclose, teach or suggest each and every limitation of claim 14. In particular, the cited combination fails to disclose, teach or suggest “the first alignment component is located entirely within an innermost vertical periphery of the second alignment component” as recited by claim 14. To the contrary of claim 14, the first alignment component 20 of Miyake is both outside of and within the vertical periphery of the second alignment component 21. The supporting member 16, with which the first alignment component 20 is integrally formed, extends beyond a vertical periphery of the second alignment component 21. Moreover, as a portion of the second alignment component 21c is within the vertical periphery of the first alignment component 20, the first alignment component is not “located entirely within a innermost vertical periphery of the second alignment component.” Accordingly, Kim also fails to disclose “the first alignment component is located entirely within an innermost vertical periphery of the second alignment component” as recited by claim 14. Claims 15 and 16 depend from claim 14 and are allowable over the cited combination for at least the reasons discussed above and on their own merits.

Claim 18 recites a microelectronic imager comprising “an imaging unit including (a) a microelectronic die having an image sensor and a plurality of external contacts electrically connected to the image sensor, (b) a cover mounted above the microelectronic die, and (c) a first referencing element adjacent to the cover, wherein the first referencing element is adjacent to a top side of the cover and the microelectronic die is attached to a bottom side of the cover; and an optics unit including an optic member and a second referencing element adjacent to the optics unit and seated and in direct contact with the first referencing element, the first and second referencing elements being configured to align the optic member with the image sensor and space the optic member apart from the image sensor by a desired distance when the first and second referencing elements are seated together.”

Applicants respectfully submit that Miyake in combination with Kim fails to disclose, teach or suggest each and every limitation of claim 18. In particular, the cited combination fails to disclose, teach or suggest “a cover mounted above the microelectronic die, and (c) a first referencing element adjacent to the cover, wherein the first referencing element is adjacent to a top side of the cover and the microelectronic die is attached to a bottom side of the cover” as recited by claim 18. Applicants respectfully disagree with the Office Action’s contention that Miyake teaches a cover. The support member 16, which the Office Action refers to as the cover of Miyake, is no such element. The support member 16 is merely formed **above** the frame member 14 as a support structure for the lens holder 18. The support member 16 has a large opening through which incident light is collected by a light acceptance plane 12. Thus, as the support member 16 contains a large opening over the light acceptance plane 12, the support layer 16 cannot possibly act as a cover for the light acceptance plane 12. Moreover, as noted by the Office Action, the first referencing component 14, 16 is attached to no additional element which could be construed as the claimed cover. Accordingly, Miyake fails to disclose, teach or suggest each and every element of claim 18.

Kim also fails to disclose, teach or suggest “a cover mounted above the microelectronic die, and (c) a first referencing element adjacent to the cover, wherein the first referencing element is adjacent to a top side of the cover and the microelectronic die is attached to a bottom side of the cover” as recited by claim 18. To the contrary of claim 18, the bottom side of the cover 4 of Kim is

not mounted to the microelectronic die and is, instead, mounted to the housing 5. (Kim, FIG. 2, reproduced below).



Kim FIG. 2

Moreover, Kim teaches the first referencing element 5 is affixed directly to the microelectronic die. As neither Miyake nor Kim disclose, teach or suggest “a cover mounted above the microelectronic die, and (c) a first referencing element adjacent to the cover, wherein the first referencing element is adjacent to a top side of the cover and the microelectronic die is attached to a bottom side of the cover,” claim 18 is allowable over the cited combination. Claims 19, 20, 22 and 24 depend from claim 18 and are allowable over the cited combination for at least the reasons discussed above and on their own merits.

Claim 26 recites a microelectronic imager comprising “an imaging unit including (a) a microelectronic die with an image sensor and a plurality of external contacts electrically coupled to the image sensor, and (b) a cover attached by a lower surface of the cover to an upper surface of the microelectronic die, wherein the cover comprises a first interface area at a set reference position relative to the image sensor; and an optics unit having an optic member and a first stand-off section

adjacent to the optics unit, the first stand-off section having a second interface area at a set reference position relative to the optic member, and the first interface area being seated with the second interface area to connect the cover with the first stand-off section in a configuration in which the optic member is at a desired location relative to the image sensor.”

As discussed above with respect to claim 18, Miyake fails to disclose, teach or suggest a cover as recited by claim 26. Accordingly, Miyake cannot possibly disclose “a cover attached by a lower surface of the cover to an upper surface of the microelectronic die, wherein the cover comprises a first interface area at a set reference position relative to the image sensor” as recited by claim 26. Kim also fails to disclose, teach or suggest the cited limitation. Kim merely discloses a filter 4 affixed to the underside of an upper portion of a housing 5. (Kim, FIG. 2). The filter 4 has a flat upper surface with no discernable interface areas. As Miyake and Kim both fail to disclose the cited limitation, claim 26 is allowable over the cited combination. Claims 27, 29 and 31 depend from claim 26 and are allowable over the cited combination for at least the reasons discussed above and on their own merits.

Claim 39 recites a method of packaging an imager comprising “providing an imaging unit having (a) a microelectronic die with an image sensor and a plurality of external contacts electrically coupled to the image sensor, (b) a first stand-off adjacent to an upper surface of the die, (c) a cover adjacent to an upper surface of the first stand-off, and (d) a first referencing element adjacent to an upper surface of the cover and having a first interface feature at a set reference position relative to the image sensor; providing an optics unit having an optic member and a second referencing element fixed to the optics unit, the second referencing element having a second interface feature at a set reference position relative to the optic member; and attaching the second referencing element to the first referencing element by seating the second interface feature with the first interface feature in a predetermined position in which the optic member is at a desired location relative to the image sensor.”

As discussed above with reference to claims 18 and 26, Miyake fails to disclose a cover. Applicants respectfully submit Miyake also fails to disclose “a first stand-off adjacent to an upper

surface of the die, (c) a cover adjacent to an upper surface of the first stand-off, and (d) a first referencing element adjacent to an upper surface of-to the cover” as recited by claim 39. Even adopting the Office Action’s assertion that Miyake teaches a cover, which Applicants do not, the cover 16 of Miyake is in direct contact with the die 13. That is, Miyake fails to disclose, teach or suggest “a first stand-off adjacent to an upper surface of the die, (c) a cover adjacent to an upper surface of the first stand-off” as recited by claim 39.

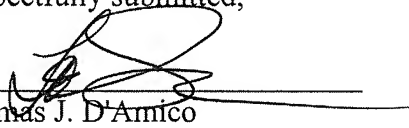
Kim fails to cure the deficiencies of Miyake. Kim teaches the cover 4 is mounted to the first referencing element 5 which is mounted to the die 1. Kim fails to disclose, teach or suggest “a first stand-off adjacent to an upper surface of the die, [and] (c) a cover adjacent to an upper surface of the first stand-off” as recited by claim 39. As the combination of Miyake and Kim fails to disclose, teach or suggest each and every limitation of claim 39, claim 39 is allowable over the cited combination. Claim 43 depends from claim 39 and is allowable over the cited combination for at least the reasons discussed above and on its own merits. Applicants respectfully request that the rejection be withdrawn and the claims allowed.

In view of the above, Applicants believe the pending application is in condition for allowance.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1073, under Order No. M4065.1286/P1286.

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Respectfully submitted,

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